

The 35 U.S.C. 102 Rejections:

Claims 1-6, 13-23, 26 and 30-33 are rejected as being anticipated by Davison et al. The rejection is respectfully traversed.

Davison et al. describe a device for making channels that uses acoustic energy transmitted from an external device down a long flexible transmission rod or wire (column 6, lines 28-44). This design is limited to operating at acoustic frequencies of 20 kHz - 100 kHz (see column 5, lines 6-26). The loss of acoustic energy as it propagates down a wire increases with frequency and makes this design unable to operate at the high frequencies (> 1 MHz) required by the present invention. The present invention generates high frequency ultrasound at the tip of the device with a piezoelectric element (PZE), as recited in claim 1. The PZE is in close proximity to the treatment site. In addition, operating at high frequency is essential to reducing the risk of collateral damage. The ultrasound energy decreases quickly away from the face of the applicants' device. The reference does not disclose a PZE. Claims 2-33 depend from claim 1. Therefore the rejection should be withdrawn.

The 35 U.S.C. 103(a) Rejections

Claim 8-12 and 28 are rejected as being unpatentable over the Davison et al. in view of Castellano et al. The rejection is respectfully traversed.

Castellano et al. describes an ablation device with a cylindrical ultrasound transducer designed to ablate tissue on the side of the device. In this design the ultrasound waves are primarily longitudinal waves which propagate away from the

transducer parallel to the surfaces. This device is not designed to convert longitudinal ultrasound waves to shear waves at the surface. Shear waves are essential to improving the ablation characteristics of surfaces. The present invention incorporates a shaped distal tip that effectively converts longitudinal waves to shear waves before interacting with tissue. Therefore the rejection should be withdrawn.

Allowable Subject Matter


It is noted that Claims 7, 24, 25 and 27 are objected to, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusions

It is submitted that this application is in condition for allowance based on claims 1-33 in view of the amendments thereto and the foregoing comments.

If any impediments remain to prompt allowance of the case, please contact the undersigned at 925-292-8652.

Respectfully submitted,

  
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